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CLAIM SCHEDULE

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1. (As Amended) A method of making a gel which is not water soluble comprised of making a water soluble polymer of an acrylic acid compound comprising:

combining an acrylic acid compound with a reactant selected from the group consisting of a divalent metal salt of said acrylic acid compound, a monovalent metal salt of said acrylic acid compound and mixtures thereof to form a polymer precursor,

combining a polymerization initiator with said precursor,

permitting said precursor to form said water soluble polymer, and

combining said water soluble polymer with a cross linking agent to form said gel;

54 wherein

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said polymer precursor contains in the range of from about 0.65 to about 2.75 units of said divalent metal salt of said acrylic acid compound per unit of said acrylic acid compound and in the range of from about 0 to about 2.25 units of said monovalent metal salt of said acrylic acid compound, and

said acrylic acid compound is represented by the formula CH₂=CR-COOH and R is hydrogen or a methyl group

and further wherein

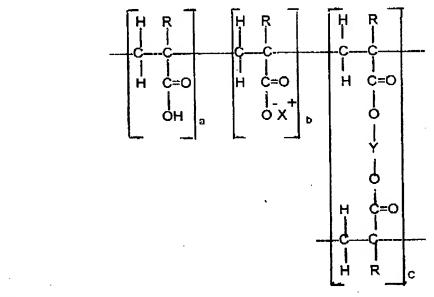
said gel is stable at temperatures up to about 450 degrees Fahrenheit.

2. (Original) The method of claim 1 wherein said polymerization initiator is a free radical initiator.

3.(Canceled) The method of claim 2 wherein said water soluble polymer is combined with a cross linking agent to form a gel which is not water soluble and is stable at temperatures up to about 450 degrees Fahrenheit.

- 4. (As Amended) The method of claim 2 wherein said cross linking agent is a compound
 containing a trivalent metal.
- 70 5. (As Amended) The method of claim 2 wherein said cross linking agent is a compound
- 71 containing chromium having a valence of + 3.
- 72 6. (Original) The method of claim 2 wherein said acrylic acid compound is acrylic acid, said
- 73 divalent metal salt is magnesium acrylate and said monovalent metal salt is an alkali metal
- 74 acrylate.
- 75 7. (Original) The method of claim 5 wherein said divalent metal salt is the reaction product of
- 76 acrylic acid and a magnesium compound selected from magnesium oxide, magnesium
- 77 hydroxide and magnesium carbonate and said monovalent metal salt is the reaction product of
- 78 acrylic acid and a sodium compound selected from sodium oxide, sodium hydroxide and
- 79 sodium carbonate.
- 80 8. (Original) The method of claim 7 wherein said cross linking agent is chromium acetate, said
- 81 sodium compound is sodium hydroxide and said magnesium compound is magnesium
- 82 hydroxide.
- 9. (Withdrawn From Consideration) The product of the method of claim 6.
- 84 10.(Withdrawn From Consideration) The product of the method of claim 8.

11.(Withdrawn From Consideration) A composition of matter represented by the formula



wherein

R is independently H and -CH_{3;} X is Na, K, Li, Rb, Cs, or NH₃; Y is Be, Mg, Ca, Sr, B or Zn; a is 1, b has a value in the range of from 0 to about 2.25 and c has a value in the range of from about 0.65 to about 2.75.

12. (As Amended) A method of making a gel which is not water soluble comprised of making a water soluble polymer comprising:

forming a polymer precursor by mixing an acrylic acid compound with a material selected from the group consisting of a divalent metal compound, a monovalent metal compound and mixtures thereof,

combining a polymerization initiator with said precursor,

permitting said precursor to form said water soluble polymer and

combining said water soluble polymer with a cross linking agent to form said gel;

107 wherein

the ratio of said monovalent metal compound to said acrylic acid compound in said

precursor is an amount in the range of from about 0 to about 0.5 moles of said monovalent metal compound per mole of said acrylic acid compound and the ratio of said divalent metal compound to said acrylic acid compound in said precursor is an amount in the range of from about 0.15 to about 0.5 moles of said divalent metal compound per mole of said acrylic acid compound;

said acrylic acid compound is represented by the formula CH₂=CR-COOH wherein R is hydrogen or a methyl group;

said monovalent metal compound is represented by the general formula X_NM and said divalent metal compound is represented by the general formula YM_Z wherein Y is beryllium, magnesium calcium, strontium, barium or zinc; X is sodium, potassium, lithium, rubidium, cesium or an ammonia group; M is oxygen, a hydroxide group or a carbonate group; M is 1 or 2, and M is 1 or 2; and

said gel is stable at temperatures up to about 450 degrees Fahrenheit.

13. (Original) The method of claim 12 wherein R is hydrogen, X is sodium, Y is magnesium, M is a hydroxide group, Z is 2, and N is 1.

14. (Original) A method of adjusting the permeability of a subsurface formation to regulate the flow of water in said formation, said method being comprised of the steps of introducing into said subsurface formation a gel which is not water soluble and is stable at temperatures up to about 450 degrees Fahrenheit, wherein said gel is made by the steps of

combining an aqueous solution of acrylic acid with a reactant selected from the group consisting of an alkaline earth metal salt of acrylic acid, an alkali metal salt of acrylic acid and mixtures thereof to form a polymer precursor,

combining a polymerization initiator with said precursor and permitting said precursor to form a water soluble polymer and thereafter,

mole of said acrylic acid.

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133	combining said water soluble polymer with a cross linking agent to form said gel;
134	wherein
135	said acrylic acid, said alkaline earth metal salt and said alkali metal salt are combined in
136	a ratio in the range of from about 0.65 to about 2.75 units of said alkaline earth metal salt per
137	unit of said acrylic acid and in the range of from about 0 to about 2.25 units of said alkali metal
138	salt per unit of said acrylic acid.
139	15. (Original) The method of claim 14 wherein said alkaline earth metal salt is magnesium
140	acrylate and said alkali metal salt is sodium acrylate.
141	16. (Original) A method of adjusting the permeability of a subsurface formation to regulate the
142	flow of water in said formation, said method being comprised of the steps of introducing into
143	said subsurface formation a gel which is not water soluble and is stable at temperatures up to
144	about 450 degrees Fahrenheit, wherein said gel is made by the steps of
145	forming a polymer precursor by mixing acrylic acid with a material selected from the
146	group consisting of magnesium hydroxide, sodium hydroxide and mixtures thereof,
147	combining a polymerization initiator with said precursor and permitting said precursor to
148	form a water soluble polymer and thereafter,
149	combining said water soluble polymer with a cross linking agent to form said gel;
150	wherein
151	the ratio of said sodium hydroxide to said acrylic acid in said precursor is an amount in
152	the range of from about 0 to about 0.5 moles of said sodium hydroxide per mole of said acrylic
153	acid and the ratio of said magnesium hydroxide to said acrylic acid in said precursor is an
154	amount in the range of from about 0.15 to about 0.5 moles of said magnesium hydroxide per